Name:

## p1105: Factoring when $a = 1$ (v3)

**Example: Factor $x^2 + 5x - 24$**

Find two numbers whose product is $-24$ and whose sum is 5. Focus on finding factor pairs of $-24$. Eventually you consider 8 and $-3$ because $(8)(-3) = -24$. You verify this pair is correct because $(8) + (-3) = 5$. Thus, your answer:

$$(x + 8)(x - 3)$$

1. Factor $x^2 + x - 56$

$$(x - 7)(x + 8)$$

2. Factor $x^2 + 16x + 64$

$$(x + 8)(x + 8)$$

3. Factor $x^2 + 17x + 72$

$$(x + 8)(x + 9)$$

4. Factor $x^2 - 3x - 54$

$$(x - 9)(x + 6)$$

5. Factor $x^2 + 10x + 21$

$$(x + 3)(x + 7)$$

6. Factor $x^2 + 7x + 12$

$$(x + 3)(x + 4)$$

7. Factor $x^2 - 1$

$$(x - 1)(x + 1)$$

8. Factor $x^2 + 5x + 4$

$(x + 4)(x + 1)$

9. Factor $x^2 - 13x + 42$

$(x - 7)(x - 6)$

10. Factor $x^2 - 14x + 45$

$(x - 5)(x - 9)$

11. Factor $x^2 - 7x + 12$

$(x - 3)(x - 4)$

12. Factor $x^2 - 9x + 14$

$(x - 7)(x - 2)$

13. Factor $x^2 + 6x - 7$

$(x + 7)(x - 1)$

14. Factor $x^2 + 4x - 5$

$(x - 1)(x + 5)$

15. Factor $x^2 - 6x + 9$

$(x - 3)(x - 3)$